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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/726,802      | 12/02/2003  | Osamu Kobayashi      | GENSP014            | 4125             |

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EXAMINER

LEE, CHUN KUAN

ART UNIT PAPER NUMBER

2181

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |   |   |  |
|------------------------------|---|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/726,802    | <b>Applicant(s)</b><br>KOBAYASHI, OSAMU |  |
|                              | <b>Examiner</b><br>Chun-Kuan (Mike) Lee | <b>Art Unit</b><br>2181                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-20 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/05/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 11/21/2005 have been fully considered but they are not persuasive.
2. Amendment to the claim 15 is acknowledged and 35 U.S.C. § 101 rejection to claims 15-20 are withdrawn.
3. In respond to applicant's argument regarding claims 1, 8 and 15 rejections under 35 U.S.C. § 103(a) that the reference Kim (US Patent 6,577,303) cannot be combined with Clark (US Patent 5,949,437) because Kim propose that the display can only be a digital type display and Clark's teaching propose that the display device can be either a digital or an analog display device without restriction and furthermore, Kim ('303) does not provide for configuration of the connector to accommodate the situation where either one or both of the video source or video display is analog in nature. The argument has been fully considered but is not found to be persuasive because of the following reasons:

Examiner does not agree, Kim clearly include the teaching wherein the display device can also be an analog device, such as an analog video display device having a cathode ray tube (CRT), wherein the DVI-I provides the appropriate interconnection for analog signals (col. 1, ll. 17-50), therefore, in utilizing the DVI-I connection, the configuration of the connector must accommodate the situation where either one or both

of the video source or video display is analog in nature. While applicant agrees that DVI-I and DVI-D use two distinct connections, it should be emphasized that DVI-I supports both analog and digital, therefore, clearly DVI-I is directly applicable.

4. In response to applicant's argument that the reference Kim ('303) does not teach configuring the connector based upon a determination of the analog or digital nature of both the video source and the video sink connected thereby. The argument has been fully considered but is not found to be persuasive because of the following reasons:

Examiner is not relying on Kim's ('303) teaching alone. Examiner is relying on the teaching of both Kim ('303) and Clark ('473), please view the rejection to claim 1 as discussed below for further details.

5. Therefore, all dependent claims depending either directly or indirectly on claims 1, 8 and 15 are unpatentable, at least because they include all the limitations recited in claims 1, 8 and 15. Examiner reiterates the rejections for claims 1-20 in detail below.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent: 6,577,303) in view of Clark (US Patent: 5,949,437).

7. As per claims 1, 8 and 15, Kim teaches a system method and computer program product executable by a processor having connecting a video source and a video display, comprising:

coupling a video signal to a digital video display device with a coupling device (Figure 1 and column 4, lines 7-34, where "video signal" is read on "video source" and "digital video display device" is read on "video display");

automatically determining whether the video signal is an analog video signal or a digital video signal (column 4, lines 35-43);

configuring the coupling device base on the determination stated above (Figure 2 and column 4, lines 35-43);

a controller for making an automatic determination of whether the video signal is the analog video signal or the digital video signal (Kim, Figure 1 and column 4, lines 44-60, where "controller" is read on "processor"); and

a video signal switch for configuring the coupling device under control of the controller according the automatic determination (Kim, Figure 1 and column 4, lines 29-65, where "video signal switch" is read on "switch").

Kim fails to teach automatic determination whether the video display is an analog video display or a digital display.

Art Unit: 2181

Clark teaches a system method and computer program product having connecting a video source and a video display, comprising automatic determining whether the monitor is analog or digital (Figure 6 and column 5, line 49 to column 6 line 14, where “monitor” is read on “video display”, “analog” is read on “analog video display” and “digital” is read on “digital display”).

Therefore, it would have been obvious to one of ordinary skill in this art, at the time of invention was made to have modified Kim to include the automatic determination whether the monitor is analog or digital.

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to have modified Kim by the teaching of Clark, because the automatic determination whether the monitor is analog or digital would reduce manufacturing cost by reducing hardware requirements, such as utilizing a single buffer to support multiple displays (Clark, Abstract).

8. Claims 2-4, 9-11 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent: 6,577,303) and Clark (US Patent: 5,949,437) as applied to claims 1, 8 and 15 above, and further in view of the “Digital Visual Interface (DVI), Revision 1.0”.

9. As per claims 2, Kim and Clark teach that the system method and computer program product having connecting the video source and the video display conforms to the Digital Visual Interface (DVI) standard (Kim, column 4, lines 1-12).

Kim and Clark do not teach configuration of the coupling device as a doubly terminated twisted pair type connector having a number of communication channels included therein.

The "Digital Visual Interface (DVI), Revision 1.0" teaches the use of a T.M.D.S. (transition minimized differential signaling) differential pair connector to interconnect the transmitter and receiver (Figure 4-1 and section 4.1 on page 33, where "T.M.D.S. differential pair" is read on "doubly terminated twisted pair type") having a number of communication channels included therein (Figure 2-1, page 10) for both digital and analog video signal and both digital and analog video display.

Therefore, it would have been obvious to one of ordinary skill in this art, at the time of invention was made to modified Kim and Clark to include the configuration of the coupling device as the T.M.D.S. differential pair connector having a number of communication channels included therein for communication between the digital video signal and the digital video display.

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to have modified Kim and Clark by the teaching of the "Digital Visual Interface (DVI), Revision 1.0", because Kim stated that the video display connection system method conforms to the DVI standard, therefore enabling to communicate video signals over a T.M.D.S. differential pair connection, therefore allowing communication of video data over the differential pair connector having a number of communication channels.

Art Unit: 2181

10. As per claim 3, Kim, Clark and "Digital Visual Interface (DVI), Revision 1.0" teach that the system method and computer program product having connecting the video source and the video display further comprising that the DVI standard supports the Extended Display Identification Data (EDID) specification, wherein both DVI compliant systems and monitors must support the EDID data structure ("Digital Visual Interface (DVI), Revision 1.0", section 1.3.2 on page 8, where "data structure" is read on "packetizing and depacketizing of data"); and therefore the video display connection system method further comprises:

- receiving data from the graphic controller (Figure 2-1 in page 10, where "graphic controller" is read on "video source");

- packetizing the video data to form a packetized video data stream formed of a number of video data packets;

- passing the video data packets by way of selected ones of the communication channels from the video source to the monitor;

- depacketizing the video data packets at the T.M.D.S. receiver; and

- generating a displayable image based upon the depacketized video data (Figure 2-1 in page 10, where "T.M.D.S. receiver" is read on "video display").

11. As per claim 4, Kim, Clark and "Digital Visual Interface (DVI), Revision 1.0" teach that the system method and computer program product having connecting the video source and the video display further comprising:



encoding video data from the video source from an 8-bit format to a 10-bit format ("Digital Visual Interface (DVI), Revision 1.0", Figure 2-1 and section 2.1 on page 10 and section 3.1.4 on page 25);

transmitting the encoded video data from the T.M.D.S. transmitter to T.M.D.S. receiver ("Digital Visual Interface (DVI), Revision 1.0", Figure 2-1 and section 2.1 on page 10, where "T.M.D.S. transmitter" is read on "video source" and "T.M.D.S. receiver" is read on "video display");

decoding video data from the 10-bit format to the 8-bit format at the T.M.D.S. receiver ("Digital Visual Interface (DVI), Revision 1.0", Figure 3-6 and section 3.3 on pages 30-31, where "decoding" is read on "converting the encoded"); and

providing the data to the display control in the 8-bit format ("Digital Visual Interface (DVI), Revision 1.0", Figure 2-1 and section 2.1 on page 10, where "display control" is read on "video display").

12. Claims 9-11 and 16-18 repeat the limitations of claims 2-4 and are therefore rejected accordingly.

13. Claims 5-6, 12-13 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent: 6,577,303), Clark (US Patent: 5,949,437) and the "Digital Visual Interface (DVI), Revision 1.0" as applied to claims 4, 11 and 18 above, and further in view of Bauch et al. (US Pub.: US 2003/0152160).

14. As per claim 5, Kim, Clark and "Digital Visual Interface (DVI), Revision 1.0" teach that the system method and computer program product having connecting the video source and the video display further comprising two T.M.D.S. links ("Digital Visual Interface (DVI), Revision 1.0", Figure 2-1 and section 2.1 on page 10).

Kim, Clark and "Digital Visual Interface (DVI), Revision 1.0" do not teach that the system method and computer program product having connecting the video source and the video display comprising wherein the communication channel is formed of a main link having an associated main link data rate and an auxiliary link having an auxiliary link data rate

Bauch teaches a video display connection system method comprise wherein the communication channel is formed of a primary link having an associated pri\_clk and a secondary link having a sec\_clk (Figure 3 and [0033] in page 3, where "primary link" is read on "main link", "pri\_clk" is read on "main link data rate", "secondary link" is read on "auxiliary link" and "sec\_clk" is read on "auxiliary link data rate").

Therefore, it would have been obvious to one of ordinary skill in this art, at the time of invention was made to modified Kim, Clark and "Digital Visual Interface (DVI), Revision 1.0" to include the formation of communication by the primary link having the associated pri\_clk and the secondary link having the sec\_clk.

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to have modified Kim, Clark and "Digital Visual Interface (DVI), Revision 1.0" by the teaching of Bauch, because including the formation of communication with the primary link having the associated pri\_clk and the secondary

Art Unit: 2181

link having the sec\_clk would enable a dual single link mode of operation for DVI application, allowing the primary link and the secondary link operate independent of one another.

15. As per claim 6, Kim, Clark, "Digital Visual Interface (DVI), Revision 1.0" and Bauch teach the system method and computer program product having connecting the video source and the video display comprise wherein the input stream is pixel data provided at a CLK frequency, wherein the pixel data is transmitted at the T.M.D.S frequency reference that is different than the CLK frequency ("Digital Visual Interface (DVI), Revision 1.0", Figure 3-1, page 24, where "input stream" is read on "source video data", "CLK" is read on "native clock rate" and "T.M.D.S frequency reference " is read on "link data rate").

16. Claims 12-13 and 19-20 repeat the limitations of claims 5-6 and are therefore rejected accordingly.

17. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent: 6,577,303), Clark (US Patent: 5,949,437), the "Digital Visual Interface (DVI), Revision 1.0", and Bauch et al. (US Pub.: US 2003/0152160) as applied to claims 6 and 13 above, and further in view of Hulvey (US Patent 5,940,137).

18. As per claim 7, Kim, Clark, "Digital Visual Interface (DVI), Revision 1.0" and Bauch teach the system method and computer program product having connecting the video source and the video display comprise wherein the primary link is encoded by converting the 8-bit format to the 10-bit format ("Digital Visual Interface (DVI), Revision 1.0", Figure 3-1, section 3.1.1 and section 3.1.4 on pages 24-25, where "converting the 8-bit format to the 10-bit format" is read on "8B/10B").

Kim, Clark, "Digital Visual Interface (DVI), Revision 1.0" and Bauch do not teach the system method and computer program product having connecting the video source and the video display further comprises wherein the secondary link is encoded using Manchester II encoding.

Hulvey teaches the transmission of video signal using Manchester encoding (column 2, lines 22-34 and column 5, lines 10-42, where "Manchester" is read on "Manchester II").

Therefore, it would have been obvious to one of ordinary skill in this art, at the time of invention was made to modified Kim, Clark, "Digital Visual Interface (DVI), Revision 1.0" and Bauch to include for communication the secondary link data using Manchester II encoding.

It would have been obvious to one of ordinary skill in this art, at the time of invention was made to have modified Kim, Clark, "Digital Visual Interface (DVI), Revision 1.0" and Bauch by the teaching of Hulvey, because including communication the secondary link data using Manchester II encoding would enable more effective data transitions and more accurate clock recovery at the receiver.

19. Claim 14 repeats the limitations of claim 7 and is therefore rejected accordingly.

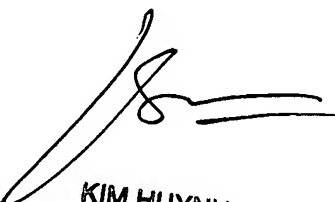
### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Kuan (Mike) Lee whose telephone number is (571)272-0671. The examiner can normally be reached on 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on (571)272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.K.L.  
01/30/2006

  
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SUPERVISORY PATENT EXAMINER  
2/2/06